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THE INNOVATION IN BUSINESS MODEL: DIGITALIZATION OF HUAWEI TECHNOLOGIES CO., LTD.*Abstract:*

This paper aims to explain the functions of digitalization on business models, and to analyze the impact of digitalization on business model innovation of Huawei. The conclusions of this paper reveal the field of digitalization is developing, Huawei has been authentically benefiting from its successful principles of digitalization.

Keywords:

Business model, business process, digitalization, innovation, Huawei, digital transformation.

1. Definition of digitalization:

With the fast development of the world economy, the intensity of competitiveness is unprecedented, it is imperative to increase attention and investment in business model innovation. Furthermore, it has been a real trend for international companies to make conduction of business model innovation with the benefits of transformation of the scientific and technological achievements, especially for high-tech enterprises, they have a smart ability to increase investment in business model innovation to enhance their overall level of business and competitiveness, creating new social demand and new economic growth areas.

Scientific research on digitalization and its impacts on business models has been growing exponentially in past 20 years.

How digital technology will impact us? McKinsey estimates: the impact of the Internet of Things (IoT) could reach a staggering US\$11 trillion by 2025, equivalent to 11% of the world economy [2].

However, some people usually misunderstand the real definition of digitalization. Digitalization is not equal to digital transformation, digital transformation is solving problems with the best possible technical methods or means, digital transformation is never triggered by digital technology, it focuses on solving a (business) problem or providing a new approach to companies or customers. Noticeably, “digitalization leads to digital business, digital transformation needs digital business and digitalization. [4]” Digitalization can help companies deal with digital content, which can be processed in digitized processes, and digital technologies lead to the development of a digital business strategy for companies. Digital content, digital processes and a digital business model and

relevant elements contribute to the implementation of digital transformation, which cover all aspects of business. Furthermore, digitization is the process of making all kinds of this information available and accessible in a digital format. (*Digitization just means transitioning from analog to digital.*) Therefore, by the virtues of digitization and digitalization, data is smoothly accessible for use across various platforms, devices, interfaces.

In other words, digitalization can help make digitized information work for businesses and customers. While digital transformation is the process of devising new business applications that integrate all this digitized data and digitalized applications and a meaningful management.

2. The relationship of digitalization and business model innovation

Generally speaking, business model refers to a company's plan for making a profit. It identifies the products or services the business plans to sell, its identified target market, and any anticipated expenses. Thus, pricing and costs are the two levers of a business model are. In other words, a business model is a document or strategy which outlines how a business or company delivers value to its customers.

However, business models are vital for both new and established businesses. Business models help new, established companies attract investment, recruit talent, and staff, motivate management. Established businesses should regularly update or adjust their business models, or they will have a strong possibility to fail to anticipate trends and challenges ahead. Meanwhile, to most extent, business models help investors evaluate companies that interest them.

On the other hand, business model innovation can play a crucial role in ensuring the social and environmental sustainability of a business or an industrial or a system. Business model innovation is very important for businesses to be capable of change.

Business model innovation describes the process in which a company updates or adjusts its ongoing business model. Commonly, this kind of innovation reflects a fundamental change in how a company delivers value and products to its customers, whether it is through the development of new revenue streams or distribution channels.

With the constant advance of electronic technology, communication technology and internet technology along with data technology, digital is the principal driver of the current changes upending our business world. Digitization affects all aspects of our business and our social lives. However, in the midst of all kinds of technological development, the leaders of businesses need to sharply understand the role of digitalization on improving effectiveness or implementing innovation of business models.

In a way, every business has its own business model. However, there are four important classic business models that are mostly affected by digitalization:

First, resource sharing platforms insource physical, informational, and human resources. For instance, shared facilities or labor pools, but this industry is a current fast growing set of services covering all business functions ranging from IT and HR to administration management, facility management and contract manufacturing. IBM is a good example, who has been able to drive scale in customers and utilize technology platforms to deliver digital data on resources.

Secondly, networking services is powerfully enabled by digital technologies. Networking services can be found in established industries such as banking, transportation, and the operation of marketplaces and exchanges. For example, Spotify, Netflix, Uber, Airbnb, Amazon, eBay, Facebook, and Google, because a set of highly efficient networking mechanisms has been created by them, that allowed for large scale sharing and involvement by multiple products or service suppliers.

Thirdly, problem consulting and solving companies are also mostly affected by digitalization. For instance, some big law firms, the management consultants, the architects, the accountants, the

engineers, the health care services, the certifiers, the analysts, etc. All these professional services have been much more efficient using digital tools, global databases, collaboration platforms, and communication solutions, internet technologies.

Finally, most manufacturing firms, such as car and medical service equipment manufacturing, robotics, automation, 3D printing, sensors and digital platforms will have been in a fourth industrial revolution.

All in all, with ongoing synthesis of the progress of internationalization of business and the advance of all kinds of technologies in human society, the leaders of all sorts of companies will inevitably to accept and adopt digitalization to conduct some innovation in their own business models. No company would like to go behind its competitor in the global market. Because the nature of goal of any business is to obtain reasonable economy benefits and to deliver its value to customers.

Regarding to business model innovation, digitalization is a powerful and efficient tool with a trace of necessity, for implementing innovation. Furthermore, digitalization is ought to accentuate the core logic of businesses, meanwhile make business models more practical, versatile and effective, beneficial. Meanwhile, for the investors, digitalization will help them evaluate a business model, enquire about whether a business process makes sense and whether the data add up.

In addition, digitalization will affect the process of designing company's organizational structure in the principle of business models in different specific ways.

Finally, the process of digitization should be organically aligned with the core logic of business all the time.

3. Digitalization of Huawei Technologies Co., Ltd.

Huawei Technologies Co., Ltd. was founded in 1987 by Ren Zhengfei in Shenzhen, where the Chinese government had set up the first special economic zone in May 1980 to experiment with private initiative and foreign investment in what was otherwise a centrally controlled and collectively owned economy (For a sympathetic biography of Ren, see (H. Li, 2017)).

Huawei is now China's most prominent multinational company. In 2018, Huawei achieved sales of USD 105.2 billion and operated in over 170 countries around the world, employing around 188,000 people. 45% of all employees are focused on R&D (Huawei, 2019), giving the firm strong technological capabilities. Huawei has now even surpassed Ericsson and Nokia to become the largest telecommunication infrastructure equipment company in the world. In addition, it is the second largest maker of smartphones.

The globalization operation of enterprises has been changing the future of global economy. Moreover, the profound development of powerful technologies manifests themselves in many ways across businesses, industries and societies, advanced technologies have been playing an increasingly important role in business operations. A growing number of high-tech companies are incorporating connectivity, cloud, big data, Internet of Things (IoT), and artificial intelligence (AI) into their core business processes and management systems, aiming to boost efficiency, creativeness and competitiveness in the global market. Huawei is a good example for it, Huawei has successfully enabled itself to obtain a digital awareness to seize market opportunities and take solid action to realize its scheduled business plan. Since 2017, Huawei has a company goal: "Embrace the digitalization towards an intelligent world" [1].

Industry policymakers of China need to encourage businesses to go digital. Huawei has worked diligently to go digital itself.

In the midst of digital transformation, every business is searching for ways to utilize new (digital) technologies, to move forward, to be a part of the Intelligent world, and to share in the digital

dividend. Huawei clearly understands the characteristic of digital world, which is intelligent. Furthermore, Huawei believes in that: ICT infrastructure is now the driver of high-quality economic growth.

With internet technology, new computing, storage, and analytics, information and communications technology (ICT) is expanding, the digital world is accordingly expanding and updating. Huawei has evidently realized that the era of digital transformation is coming, and Huawei has made “to build a national ICT infrastructure to make the digital economy [1]” as its business strategy, and then has taken action.

Digital transformation is the necessary next step on Huawei's journey to the intelligent (digital) world. Therefore, Huawei heavily focuses on the concepts and principles of digitalization.

Huawei has four drivers for digitalization [1]:

1. Connectivity is a fundamental human need.

With the arrival of the digital economy, the demands placed on connectivity across the world cover the entire spectrum from basic physiological needs to safety needs, esteem needs, and ultimately self-actualization. Huawei has understood this trend.

2. Connectivity is competitiveness for enterprises.

Today's digital economy, connectivity technologies, particularly broadband, have a bigger impact on their business than any other category of technology. Connectivity enables enterprises to escape the constraints of geography, collect more information, respond to customers more quickly, improve their productivity and efficiency, and make themselves more competitive. Huawei cherishes this trend.

1. Connectivity is a catalyst for economic growth.

Connectivity is a good way to measure a country's digital economy. According to Huawei's 2017 GCI report, an improvement of just one point in a country's GCI score equates to a 2.3% increase in productivity, a 2.2% rise in innovation, and a 2.1% increase in national competitiveness. Now 151 countries worldwide have recognized that broadband needs to be a critical part of their national development strategy, and have formulated policies to support it [1].

2. Building a better connected world.

Connectivity is, in essence, the world's nervous system, and it is extending across the world to the point where it will soon be ubiquitous.

Huawei is contributing to enable everyone to enjoy the infinite possibilities of the Internet in digital world.

On the other hands, a clear set of consistent policies of encouraging national broadband strategies for ICT development, which the government of China are putting into place. Huawei has utilized it.

According to cost issues in the construction of urban infrastructure, all governments should introduce standards, specifications, incentive policies, and annual reviews to help alleviate the cost pressure. The goal is a coordinated plan for connectivity. Mobile networks are the key link for connection, so governments should work to provide new spectrum resources to carriers to develop mobile network. Thus, Huawei should take more social responsibility to work for it.

When it comes to consumption in the global market, Huawei understands that “The more people using connection services, the healthier the market will be.”. Huawei can make use of innovative technologies and sound business models to provide better broadband services packages to encourage consumption.

Huawei has seen a surge of interest in cloud. It follows dramatic advances in the technology infrastructure to support it, besides, Huawei has followed the global cloud trend, because Huawei understands the benefits of cloud:

- a. Accelerates the way companies create new products and services, and new business models, through faster research and information sharing
- b. Helps organizations serve their customers better through data mining and analysis
- c. Lowers spending on software, servers, data centers, etc.
- d. Enables leapfrog development with affordable access to advanced applications, tools, and infrastructure
- e. Empowers governments to provide healthcare, education, and financial services where they did not previously exist
- f. Reduces our carbon footprint as economies of scale and less energy usage

For international enterprises, it is especially important for their cloud vendors to provide them with access to that local service all around the world. It is inevitable.

With 20 years of experience serving medium- and large-sized enterprises, Huawei has built up a deep understanding of enterprise business needs.

In China, Huawei is the market leader for private cloud, server, storage, and networks. Among the world's Fortune 500 companies, 172 have chosen its services. Of the Fortune 100 companies, 43 are customers of Huawei [1].

Huawei's cloud services help its customers to achieve real bottom-line success. Around the world, with so many different local and regional scenarios, there's no single model that will serve all needs. To support the diversity of its customer base, Huawei operates both the Huawei cloud service and localized joint services with its partners: China Telecom eCloud, Deutsche Telekom Open Telecom Cloud, Orange Flexible Engine, and Telefonica Open Cloud.

In all of its business relationships, Huawei fully respects the boundaries between its strengths and services, and its partners' strengths and services. To date, Huawei has built trust with reliable, open and local service worldwide.

Huawei forecasts that by 2025, there will be 100 billion connected devices, used in every area of business and life. Gartner predicts it: in the next five years, nearly 184 million new connected cars will be produced [2].

Huawei's Global Industry Vision forecasts: 77% of the world's population will be connected across 100 billion connections by 2025. 85% of enterprise applications will be cloud-based. 12% of households will have smart home robots. This market will be worth hundreds of billions of US dollars [2].

Governments worldwide are issuing policies to develop the Internet of Things (IoT). A great number of policies have been designed to accelerate the trend towards smart cities, along with closer technological, economic and trade exchanges between countries. Therefore, it is obvious that IoT is a vital new growth engine, which is essential for expansion of the digital economy. Huawei has seen that the sustainable growth of IoT is based on connectivity.

Together with governments and partners, Huawei has conducted three steps to develop the Internet of Things (IoT) [1]:

Step 1: Build connections to gather data.

Step 2: Analyze data to create value.

Step 3: Explore new value for new business models.

As a global leader in information and communications technology with three decades of experience, Huawei has the capability to deliver full-stack IoT solutions, from chipsets to operating

systems, from IoT connections and platform to cloud computing and big data analytics, and even ecosystem development. Huawei is well positioned to provide industry customers and partners with seamless, full-stack services and experiences.

For all industries, online video is evolving from a basic service of businesses to a fundamental capability. Because online video reshapes the business models of enterprises, please refer to the below:

- a. Online video makes production more efficient and more secure,
- b. Online video enables face-to-face interaction from long distances,
- c. Online video creates superior user entertainment experiences
- d. Online video changes the way we entertain, creating superior user experiences

Huawei believes that ecosystem expansion to promote video industry growth. And Huawei has made digitalization deeply into its business model.

Noticeably, in digital economy, digital evolution brings new security challenges, Cyber security built into the innovation process. So that, cyber security must be part of a company's culture and business model. Furthermore, Huawei has utilized digitalization to deal with the issues concerning cyber security of industries in many specific ways.

Last, Huawei has implemented its business model innovation with digitalization into the domains of digital government (Intelligent Government), and banking, manufacturing, transportation, energy production and delivery, etc.

Huawei sees that digitalization is transforming our business ecosystems, and an open, collaborative, and sustainable ecosystem needs the help of digital transformation.

4. Conclusion

This paper has a two-fold aim: to explain the functions of the digital transformation in business model, and to analyze the impact of digitalization on business model innovation of Huawei Technologies Co., Ltd. The results of this research reveal that the activity of digitalization is still developing sharply, and Huawei has been authentically benefiting from its successful principles of digitalization, and Huawei meets customer needs, produces innovative new products, catches market opportunities and is faced with challenges smartly.

This research concludes that digitalization has impacted value creation, business growth, delivery, and capture in Huawei Technologies Co., Ltd. These impacts have intelligently led to the employment of a variety of new business models.

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